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#27 Appeal Brief n Chapman 6-7-00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Steven E. Robbins
Serial No. : 08/873,876
Filed : June 12, 1997
Title : RESILIENT SOLE FOR USE IN ARTICLES OF FOOTWEAR TO ENHANCE BALANCE AND STABILITY

Art Unit : 3728
Examiner : M. Patterson

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Assistant Commissioner for Patents
Washington, D.C. 20231

APPEAL BRIEF

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(1) Real Party in Interest

Steven E. Robbins is the real party in interest.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of Claims

Claims 1-18 are pending in this application, with claims 1 and 9 being independent.

Claims 1-18 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and use the invention.

Claims 1-18 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Claims 1-3, 7-11, and 15-18 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,633,877 (Pendergast).

Claims 4-6 and 12-14 stand rejected under 35 U.S.C. 103(a) as being obvious over Pendergast.

(4) Status of Amendments

The claims were not amended subsequent to the final rejection.

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(5) Summary of Invention

The invention relates to the art of footwear construction.

A sole is a base on which the foot of the wearer rests. The sole includes any part of or all of the structures intended to be located in proximity to a part of or all of the plantar surface of the foot. When the footwear is a shoe, the sole is the material forming the bottom or a layer of the bottom of the shoe, for example, a sockliner, insole, midsole, or outer sole. Page 4, lines 17-19, and page 7, lines 7-23.

A shoe sole made of a material having a low resiliency offers enhanced stability during locomotion while providing a degree of comfort comparable to prior art shoe soles made of materials having a higher resiliency. Page 4, lines 10-15.

Resiliency of the sole is quantified using a resiliency index, which measures the rate of recovery of the sole with relation to time following a compressive deformation. The resiliency index depends on the peak recovered thickness observed within a time frame immediately following removal of a load from the sole, the thickness of the sole before the load is applied to the sole, and the thickness of the sole during application of the load to the sole. Page 6, lines 19-24 and page 12, lines 5-13.

In a highly resilient material, compression at every step of the foot produces a transitory "base shifting" event and, perhaps, a surface oscillation from rebound that may destabilize the wearer. In contrast, a sole made from a low resiliency material offers a more stable base because the material remains compressed between footsteps without base shifting or rebound. Page 4, line 19 to page 6, line 2.

In one implementation, a shoe includes a vamp secured to a bottom to form a foot receiving enclosure. The bottom, which is made of a layered structure, determines in large part the comfort potential and stability of the shoe. The layered structure includes an outer sole made of carbon rubber bonded to a midsole made of expanded polymer such as ethylene-vinyl acetate (EVA) copolymer. The layered structure also includes an insole bonded to the upper surface of the midsole. The insole is made from a material selected to provide a resiliency index in the range from about 0.05 to about 0.5, preferably from about 0.1 to about 0.35, and most preferably from about 0.1 to about 0.2. Page 9, line 10 to page 10, line 9.

The benefits of the low resiliency material are increased when the insole has a hardness within a predetermined range selected to enhance stability. The hardness should be in the range from about Shore A 2 to about Shore A 40, and preferably from about Shore A 2 to about Shore A 14. Page 13, lines 12-22.

Moreover, the sole preferably has a thickness in the range from about 2 mm to about 50 mm, more preferably from about 5 mm to about 25 mm, and most preferably from about 12 mm to about 20 mm. Page 13, line 24 to page 14, line 2.

The insole may be made of an expanded polymer, available from Pandel Inc., under the designation "TENNIS EMBEDDED FLOOR MATTING". The expanded polymer is a PVC aerated polymer foam of Shore A 5 hardness. To maintain low resiliency, the thickness of the insole material before application of a load is 0.92 cm and the thickness of the insole material during application of the load is 0.38 cm. The peak recovery thickness is observed within 2 to 3 seconds from removal of the load, and is determined to be 0.38 cm. Based on these characteristics of the material, the insole has a resiliency index of 0.156. Page 14, lines 4-15.

EVA polymer aerated into expanded foam is often used in athletic footwear. In contrast to the above-described material, the EVA material is considered unsuitable for use in an article of footwear because it is too resilient, having a resiliency index of about 0.714. Page 14, lines 17-23.

(6) Issues

Do claims 1-18 contain subject matter not described in the specification?

Are claims 1-18 indefinite?

Is the subject matter of claims 1-3, 7-11, and 15-18 anticipated by Pendergast?

Would the subject matter of claims 4-6 and 12-14 have been obvious over Pendergast?

(7) Grouping of Claims

The claims stand or fall together.

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(8) Argument

THE SUBJECT MATTER OF CLAIMS 1-18 IS DESCRIBED IN THE SPECIFICATION IN SUCH A WAY AS TO ENABLE ONE SKILLED IN THE ART TO MAKE AND USE THE INVENTION

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Independent claim 1 recites a sole for use in an article of footwear in proximity to a plantar surface of a foot. The sole has a resiliency index in the range from about 0.05 to about 0.5. The resiliency index is defined as a ratio (R-M)/(P-M), where P is a thickness measured when only a pre-load is applied, M is a thickness measured when both the pre-load and a main load are applied, and R is the maximum recovered thickness within one second immediately following removal of the main load.

The Appellant respectfully requests reversal of the rejection of claim 1 because the specification provides any person skilled in the art with all necessary information to make and use the invention. The specification, when fairly read, teaches three important things relevant to claim 1. The first one is that better stability is obtained when the material of the sole for the article of footwear has a resiliency index in the range from about 0.05 to about 0.5. The second one is a detailed disclosure of the way the resiliency index is measured for any material. The third one is a reference to a commercially available material that falls in the claimed resiliency index range.

Therefore, any person skilled in the art, by reading the specification, has in hand all the information necessary to make the invention. In particular, she or he has knowledge of a specific and commercially available material that falls in the claimed range. Moreover, through simple (not undue) experimentation, she or he can make a material having a resiliency index value different than the one specifically disclosed, and may do so by, for example, varying parameters such as formulation and physical parameters during the manufacture of the material.

In making this rejection, the Examiner refers to the objection of the specification under 37 C.F.R. 1.71 for failing to provide an enabling disclosure that adequately teaches how to make and/or use the invention. In this objection, the Examiner states that:

> "...applicant has provided a single example of material which would work, this example has a 'resiliency index' of 0.156 and a Shore A hardness of A5. It is not clear how applicant assumes that

> a material with a 'resiliency index' in the entire range of 0.05-0.5 would work or for the Shore A hardness range of A2-A40, preferably A2-A14, since the only material disclosed has an index of 0.156 and A5 and according to the Declaration filed 5/8/98 applicant has found only one other material in the stated range which has an index of 0.218. Since applicant has stated that the other commonly used shoe materials have an index above 0.6, there is no clear evidence of why applicant contends or assumes that an index of 0.5, 0.4 or 0.3 would be appropriate. It is not clear how or why a measurement of almost 3 times the index of the material applicant has found would be considered appropriate."

The Appellant respectfully disagrees with this conclusion. The Appellant was first to discover and demonstrate that highly resilient sole materials destabilize humans because they diminish foot-position awareness. These findings were published in the Journal of the American Geriatrics Society (volume 45, pp. 61-66, 1997).

Through extensive testing, the Appellant has found that prior art materials for use in footwear have resiliency indices of 0.6 and above. The materials at the 0.6 boundary offer a poor stability. A material having a resiliency index of about 0.5 offers enhanced stability and, therefore, is an improvement over the prior art. The Appellant should be entitled to protection of such a material, because use of such a material was made possible by the Appellant's work. See In re Fisher, 166 USPQ 18, 23-24 (CCPA 1970). (explaining that for "cases involving predictable factors, such as mechanical or electrical elements, a single embodiment provides a broad enablement in the sense that, once imagined, other embodiments can be made without difficulty and their performance characteristics predicted by resort to known scientific laws").

Here, because other materials may be identified by determining the resiliency of the material as detailed in the specification, the single disclosed embodiment provides a broad enablement.

Moreover, a specification that contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the subject matter sought to be patented must be taken as in compliance with the enabling requirement of the first paragraph of 35 U.S.C. 112 unless there is reason to doubt the objective truth of the statements contained therein that must be relied on for enabling support.

See In re Marzocchi, 169 USPQ 367, 369-70 (CCPA 1971). In that case, the court explained that a term in a claim (such as the term "sole having a resiliency index in the range from about .05 to about .5" in claim 1) must be taken as an assertion by Appellants that all of the materials that are included within the term would, as a class, be operative to produce an asserted enhancement. In claim 1, the asserted enhancement to the sole is better stability and good comfort.

Accordingly, the rejection of claim 1 should be reversed, as should the rejection of the claims depending from claim 1.

Independent claim 9 recites an article of footwear that, essentially, includes the sole described in claim 1. Accordingly, the rejection of claim 9 should be reversed, as should the rejection of the claims depending from claim 9.

CLAIMS 1-18 POINT OUT AND DISTINCTLY CLAIM THE INVENTION

Claims 1-18 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which the Appellant regards as the invention. The Examiner states "in claims 1-3 and 9-11, the phrase 'resiliency index' is vague and indefinite because it is not clear what materials applicant intends to encompass with such language."

The Appellant respectfully disagrees. Materials Appellant intends to encompass are those materials having the resiliency indices recited in the claims. The resiliency index is defined in the claims as being the ratio of (R-M) to (P-M), where R is the peak recovered thickness observed within the one second time frame immediately following the removal of main load; M is the thickness under pre-load and main load; and P is the thickness under pre-load only. The Appellant fails to see where the vagueness resides, in that the mathematical formula defining the resiliency index and the meaning of the terms or expressions used in formulating the claims seem abundantly clear.

According to MPEP 2173.02, the Examiner should analyze the claim language in light of the content of the disclosure, the teachings of prior art, and the claim interpretation that would be given by one possessing ordinary level of skill in the art at the time of the invention to

determine whether a rejection of the claims under 35 U.S.C. 112, second paragraph is appropriate.

In particular, the content of the disclosure describes, in detail, how one would measure a resiliency index of a material:

> "The testing procedure consists of positioning a test specimen having an area of 20 square centimeters (cm^2) and a thickness (uncompressed) of 50 mm. The test specimen may consist of a single ply or a number of superimposed plies sufficient to give the desired nominal thickness (if there are several plies they should not be bonded or otherwise attached to one another). The assembly formed by the anvil 114, ball 116 and arm 108 (free of the main load 112) is first deposited on the test specimen of duration of 15 seconds (sec) to create a preload condition of 0.9 kg.... The main load 112 of 3.17 kg is then applied to the anvil for a period of 1 minute (min). The main load 112 is instantly removed and the recovery of the test sample is recorded for a period of at least 2 sec. The resiliency index is expressed by the following formula:
>
> $$\frac{R-M}{P-M}$$
>
> where:
> R: peak recovered thickness observed within the one second time frame immediately following the removal of the load;
> M: thickness under preload and main load; and
> P: thickness under preload."

Page 11, line 9 to page 12, line 13.

From this, the subject matter that Appellant regards as the invention would be clear to one of ordinary skill in the art. Accordingly, the rejection of independent claims 1 and 9 should be reversed, as should the rejection of the claims depending from these claims.

THE SUBJECT MATTER OF CLAIMS 1-3, 7-11 AND 15-18 IS NOT ANTICIPATED BY PENDERGAST

The Examiner has rejected claims 1-3, 7-11, and 15-18 under 35 U.S.C. 102(b) as being anticipated by Pendergast (US Patent 4,633,877).

Independent claim 1 recites a sole for use in an article of footwear in proximity to a plantar surface of a foot. The sole has a resiliency index in the range from about 0.05 to about

0.5. The resiliency index is defined as a ratio (R-M)/(P-M), where P is a thickness measured when only a pre-load is applied, M is a thickness measured when both the pre-load and a main load are applied, and R is the maximum recovered thickness within one second immediately following removal of the main load.

In making this rejection, the Examiner states:

> "Pendergast shows a sole made from PVC foam with a Shore A hardness of 5A-50A and suggests selecting a particular hardness of firmness based upon the stretch, contraction, and dwell desired and that the materials will exhibit the characteristic of impact absorption and compression (in contrast with resilience) (column 8 lines 59-69). The materials used and suggested by Pendergast inherently would have the resiliency indexes as claimed."

The Appellant disagrees. As described in the attached Declaration Under 37 C.F.R. §1.132, the inventor has tested numerous commercially available PVC foams, including the common PVC foams used in footwear. This testing clearly and unequivocally established that all but a single one of the tested PVC foams had a resiliency index greater than 0.6. The one PVC foam that had a resiliency index below 0.6 had a resiliency index of 0.156. This PVC was marketed for use as underpadding for carpeted tennis courts, and not for use in common footwear.

The Appellant submits that PVC foams used in common footwear have resiliency indices greater than 0.6 because the conventional wisdom in the footwear industry is to employ highly resilient materials, which goes against the grain of the Appellant's invention. The Appellant has attested to the fact that the use of a PVC base stock is but one of a multitude of factors that affect the resiliency index. Cure times, temperatures and pressures, aeration and additives are all factors that affect the resiliency index of polymer foam. Thus, the resiliency index of PVC foam can vary tremendously. There is no inherent resiliency index for all PVC foam, and nothing in Pendergast indicates that he intends to buck conventional wisdom and use a low resiliency material.

Accordingly, the rejection of claim 1 should be reversed, as should the rejection of the claims depending from claim 1.

Independent claim 9 recites an article of footwear that, essentially, includes the sole described in claim 1. Accordingly, the rejection of claim 9 should be reversed for the reasons noted above with respect to claim 1.

THE SUBJECT MATTER OF CLAIMS 4-6 AND 12-14 WOULD NOT HAVE BEEN OBVIOUS OVER PENDERGAST

The Examiner has rejected claims 4-6 and 12-14 under 35 U.S.C. 103(a) as being unpatentable over Pendergast.

The Appellant disagrees. The Examiner's argument is predicated on the rejection of claims 1-3 and 7-11 for lacking novelty. For the reasons stated above, the Appellant respectfully submits that claims 1-3 and 7-11 (as well as claims 15-18) are novel and nonobvious. Thus, the Appellant contends that claims 4-6 and 12-14 are also patentable because they depend on patentable claims.

Moreover, although the Examiner states that "Pendergast as discussed above shows a shoe sole substantially as claimed except for the exact thickness of the sole," this is simply not correct because Pendergast never describes or suggests a sole having a resiliency index in the range from about 0.05 to about 0.5.

Accordingly, the rejection of claims 4-6 and 12-14 should be reversed.

Conclusion

For the foregoing reasons, the rejections should be reversed.

This appeal brief is being filed within five months from December 21, 1999, the filing date of the Notice of Appeal. Attached hereto is a Petition for Extension of Time for three months extending to and including May 21, 2000. A check in the amount of $585.00 to cover the fee for this appeal brief under 37 C.F.R. §1.17(c) and the fee of $435.00 for the extension of time under 37 C.F.R. §1.136 is enclosed. If there are any charges not covered, or any credits, please apply them to Deposit Account No. 06-1050, Reference No. 06119-011002.

Respectfully submitted,

Date: May 19, 2000

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(9) Appendix - All claims as currently pending.

1. A sole for use in an article of footwear in proximity to a plantar surface of a foot, said sole having a resiliency index in the range from about .05 to about .5, the resiliency index being defined as a ratio (R-M)/(P-M), wherein P is a thickness measured when only a pre-load is applied, M is a thickness measured when both the pre-load and a main load are applied, and R is the maximum recovered thickness within one second immediately following removal of the main load.

2. A sole as defined in claim 1, having a resiliency index in the range from about .l to about .35.

3. A sole as defined in claim 1, having a resiliency index in the range from about to .1 about .2.

4. A sole as defined in claim 1, having a thickness in the range from about 2 millimetres to about 50 millimetres.

5. A sole as defined in claim 4, having a thickness in the range from about 5 millimetres to about 25 millimetres.

6. A sole as defined in claim 4, having a thickness in the range from about 12 millimetres to about 20 millimetres.

7. A sole as defined in claim 1, having a hardness in the range from about Shore A 2 to about Shore A 40.

8. A sole as defined in claim 1, including synthetic material.

9. An article of footwear including a sole in proximity of a foot receiving surface of said article of footwear, said sole having a resiliency index in the range from about .05 to about .5, the resiliency index being defined as a ratio (R-M)/(P-M), wherein P is a thickness measured when only a pre-load is applied, M is a thickness measured when both the pre-load and a main load are applied, and R is the maximum recovered thickness within one second immediately following removal of the main load.

10. An article of footwear as defined in claim 9, wherein said sole has a resiliency index in the range from about 1 to about .35.

11. An article of footwear as defined in claim 9, wherein said sole has a resiliency index in the range from about 1 to about .2.

12. An article of footwear as defined in claim 9, wherein said sole has a thickness in the range from about 2 millimetres to about 50 millimetres.

13. An article of footwear as defined in claim 9, wherein said sole has a thickness in the range from about 5 millimetres to about 25 millimetres.

14. An article of footwear as defined in claim 9, wherein said sole has a thickness in the range from about 12 millimetres to about 20 millimetres.

15. An article of footwear as defined in claim 9, wherein said sole has a hardness in the range from about Shore A 2 to about Shore A 40.

16. An article of footwear as defined in claim 9, wherein said sole includes synthetic material.

17. An article of footwear as defined in claim 9, wherein said sole has an upper surface constituting said foot receiving surface.

18. An article of footwear as defined in claim 9, wherein said article of footwear is selected from the group consisting of a shoe, boot and sock.